

REMARKS

The Applicant thanks the Examiner for the timely indication of allowable subject matter in claims 2 and 3. Claims 1, 6-8, 10-12, 14, and 15 have been amended. Reconsideration of the present application as amended is respectfully requested.

Dependent claims 16-17 were objected to as being of improper form. These claims have been amended to remove instances of one multiple dependent claim depending from another. Accordingly, it is believed the amendment addresses the concerns raised in the objection.


Claims 1-5 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite with regard to the language "an array of one or more elongate capillary channels ..." Claim 1 has been amended to revise such language in a manner believed to address this concern.

Claims 1, 4, and 5 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,571,410 to Swedberg et al. (the "Swedberg" reference). In order to establish anticipation, each and every element and limitation of the subject claim must be disclosed in a single reference. The features of claim 1 that are not disclosed by the Swedberg reference include an array of capillary channels and a radiation detector array disposed on either side of the array of capillary channels so as to simultaneously detect the presence of material in the channels as interruptions in the radiation path between the radiation source and the radiation detector array. The asserted embodiments of the Swedberg reference appear to be directed to single-channel/single-detector devices; and, more particularly, are directed to manufacturing techniques for such devices.

Besides the patentability of the base claim, further reasons support the patentability of the rejected dependent claims. For example, dependent claim 10 further includes focusing formations to focus ultraviolet light onto the interior of each channel, which are not disclosed by the Swedberg reference. In another example, dependent claim 11 further defines that the interior of each channel is substantially mid-way between the focusing formations and the radiation detector array. In yet another example, dependent claim 12 recites that the radiation detector array is fabricated from a further substrate of semiconductor material. Still another example is provided by dependent claim 15 in which the radiation detector array comprises an array of obscured regions of the substrate under the channels and means for detecting an electron current formed by electron-hole pair generation at the obscured regions. Accordingly, further grounds support patentability of rejected dependent claims in addition to the reasons supporting patentability of the corresponding independent claim 1.

In view of the foregoing, it is respectfully submitted that claims 1-17 are in condition for allowance. Reconsideration of the present application as amended is respectfully requested. The Examiner is encouraged to contact the undersigned by telephone to resolve any outstanding matters concerning the present application.

Respectfully submitted:



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ATTACHMENT UNDER 37 CFR 1.121

Pursuant to 37 C.F.R. 1.121, a marked-up copy on separate sheets is provided for the amendment of claims 1, 6-8, 10-12, 14, and 15 as follows, using underlining to show added language and square brackets to indicate deletions.

1. (Amended) An analyser comprising:

a substrate of diamond, sapphire or a polymer material;

an array of [one or more] elongate capillary channels formed in the substrate;

means for driving a sample to be tested along [one or more of] the channels

whereby the velocities of components of the sample along the channels depend[s] on the relative molecular weights of those components;

a radiation source and a radiation detector array disposed on either side of the channel array so as to simultaneously detect the presence of material in the channels as interruptions in the radiation path between the radiation source and the radiation detector array.

6. (Amended) An analyser according to claim 1, [any one of the preceding claims,] in which the channels are less than 200µm wide.

7. (Amended) An analyser according to claim 1, [any one of the preceding claims,] in which the channels are less than 100 µm wide.

8. (Amended) An analyser according to [any of one of the preceding claims,] claim 1, in which the radiation source comprises an ultraviolet light source.

10. (Amended) An analyser according to claim 8 [or claim 9], in which focusing formations are formed on the substrate to at least partially focus the ultraviolet light onto the interior of each channel.

11. (Amended) An analyser according to claim 10, in which the focusing formations, the channels and the radiation detector array are arranged so that the interior of each channel is substantially mid-way between the focusing formations and the radiation detector array.

12. (Amended) An analyser according to claim 1, [any one of the preceding claims,] in which the substrate of diamond, sapphire or a polymer is formed on a further substrate of a semiconductor material, the radiation detector array being fabricated on the further substrate of semiconductor material.

14. (Amended) An analyser according to [claim 11 or] claim 12, in which the radiation detector array comprises an array of pixel detectors formed on the further substrate.

15. (Amended) An analyser according to claim 1, [any one of claims 1 to 11,] in which the radiation detector array comprises an array of obscured regions on the substrate under the channels, and means for detecting an electric current formed by electron-hole pair generation at the obscured regions.